

REMARKS

Status of the Claims

Claims 1-4 have been cancelled without prejudice to the filing of continuing applications. The claims pending in the application are claims 5 to 7.

The new claims are fully supported by the specification as filed. Thus, no new matter is introduced by the new claims.

Rejection under 35 U.S.C. §112

Claims 3 and 4 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3 and 4 have been cancelled.

New claims 5 to 7 overcome this rejection.

Rejection 35 U.S.C. §102

Claim 1 stands rejected under 35 U.S.C. §102(b) as being anticipated by Ahern et al. (Biotechnology and Bioengineering, 1983, 25 : 1057-1070) or Kessler et al. (U.S. Pat. 5,552,307).

According to the Examiner, Ahern et al. discloses the extraction of free polyunsaturated fatty acids, including arachidonic acid, from red alga *Porphyridium Cruentum* and during cell culture growth, various lipids such as palmitic, stearic, and oleic acids may be added (see "Induced lipogenesis", bottom of page 1059), these lipids thus serving as "elicitors".

Still, according to the Examiner, Kessler et al. discloses using modified proteins as elicitors to increase production of free polyunsaturated fatty acids (such as arachidonic acid) in *Porphyridium Cruentum* (column 5, lines 36-40).

Applicants respectfully traverse this rejection.

According to new claims 5 to 7, the acids 12-HETE and 11,12-EET, not arachidonic acid, are prepared by extraction from the red algae *Chondrus Crispus*, not *Porphyridium Cruentum*, after incubation of the latter with an extract of the green algae *Achrochaete Operculata*, and not after addition of a lipid or a modified protein.

Thus, the rejection under 35 U.S.C. §102 is not well founded.

Rejection 35 U.S.C. §103

First, the Examiner is correct when presuming that the subject matter of the various claims as well as of new claims 5 to 7 was commonly owned at the time any inventions covered therein were made.

Claims 1 and 4 stand rejected under 35 U.S.C. §103 (a) as being unpatentable over Ahern et al. in light of Campbell et al. and Gerwick et al., and in view of Thepenier et al. (U.S. Pat. No. 5,338,673) and Galland-Irmouli et al. (Journal of Chromatography B, 2000, 739(1) : 117-123).

Applicants respectfully traverse this rejection.

Ahern et al. neither discloses nor renders obvious the invention as defined in new claims 5 to 7, i.e. extraction of 12-HETE and of 11,12-EET from *Chondrus Crispus* after incubation with an extract obtained from *Achrochaete Operculata*.

Neither do Campbell et al. nor Gerwick et al., Thepenier et al. and Galland-Irmouli et al. render obvious the extraction of 12-HETE and of 11,12-EET from *Chondrus Crispus* after incubation with an extract obtained from *Achrochaete Operculata*.

Claims 1 and 4 stand rejected under 35 U.S.C. §103 (a) as being unpatentable over Kessler et al. in view of Ahern et al., Gerwick et al., Thepenier et al., and Galland-Irmouli et al.

This rejection is respectfully traversed.

The prior art references relied upon are the same as above

discussed, except Thepenier et al.

Thepenier et al. disclose production of polyunsaturated fatty acids from *Porphyridium Cruentum*.

Thepenier et al. do not disclose nor render obvious preparation of 12-HETE and of 11,12-EET from *Chondrus Crispus* after incubation with an extract from *Achrochaete Operculata*.

The same reasoning applies to this rejection as was set forth with respect to the preceding rejection.

Claims 1 and 2 stand rejected under 35 U.S.C. §103 (a) as being unpatentable over Tasende (Scientia Marina, 2000, 64(4) : 421-426) in light of Gerwick et al. and in view of Bouarab et al. (Plant Cell, 1999, 11(9) : 1635-1650).

Tasende et al. do not disclose nor suggest preparation of 12-HETE and 11,12-EET by extraction from *Chondrus Crispus*.

Furthermore, the incubation of *Chondrus Crispus*, a fortiori with an extract from *Achrochaete Operculata*, is neither disclosed nor suggested.

The Examiner is correct when stating that Bouarab et al. disclose that

"The green algae *Achrochaete Operculata* is a primary invasive organism of *Chondrus Crispus*".

But, when the Examiner deduces therefrom that

"At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to conclude that *A. Operculata* had served as an elicitor for production of polyunsaturated fatty acids and their oxidation metabolites in the Tasende study.",

Applicants respectfully submit that this conclusion does not follow from that passage, as the sentence

"The green algae organism
of *Chondrus Crispus*"

is followed by this passage

"When *A. Operculata* zoospores settle and germinate, the vegetative filaments of the parasite completely invade the host sporophytes, resulting in severe damage to tissues and permitting secondary bacterial invasions, which eventually lead to the fragmentation and death of sporophytic fronds (Correa et al., 1988; Correa and McLachlan, 1992, 1994) ",

which does not case support the Examiner's conclusion and even teaches away from bringing *Achrochaete Operculata* into contact with *Chondrus Crispus*.

Lastly, the new claims require incubation of *Chondrus Crispus* with an extract from *Achrochaete Operculata* which is neither disclosed nor suggested by the reference.

Claims 1-3 stand rejected under 35 U.S.C. §103 (a) as being unpatentable over Tasende et al., Gerwick et al., and Bouarab et al. as applied to claims 1-2, and further in view of Bouarab et al.

The Examiner is correct in her statement that these references do not teach stimulating the red alga with an extract of a green alga which had been obtained by aqueous extraction under cold or hot conditions applied to green alga which had been ground in liquid nitrogen.

The Examiner is also correct that Bouarab et al. teach grinding *A. Operculata* cells in liquid nitrogen, the ground *A.*

Operculata being resuspended in a buffer.

However, Applicants respectfully disagree with the Examiner's contention that, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add a solution of *A. Operculata* in buffer to the red algal samples used in the Tasende study.

Actually, Bouarab et al. disclose incubation of the extract obtained from *Achrochaete Operculata* with radiolabelled carrageenans, not with a *Chondrus Crispus* biomass.

That latter incubation is not suggested and the skilled artisan would not have been motivated to carry out such an incubation, knowing the above recalled negative effects of *Achrochaete Operculata* on *Chondrus Crispus*.

Claims 1, 2, and 4 stand rejected under 35 U.S.C. §103 (a) as being unpatentable over Tasende et al., Gerwick et al., and Bouarab et al. as applied to claims 1-2, and further in view of Nakano et al. (Plant Science (Limerick), 1995, 104(2): 127-133).

Applicants respectfully traverse this rejection.

Tasende et al., Gerwick et al., and Bouarab et al. have already been discussed herein and their irrelevance to the claimed invention has been demonstrated.

Nakano et al. concerns neither extraction the of 12-HETE and of 11,12-EET from *Chondrus Crispus* nor incubation of an extract from *Achrochaete Operculata* with *Chondrus Crispus*.

Thus, assuming arguendo that the combination is correct, a combination of these references does not render obvious the claimed invention.

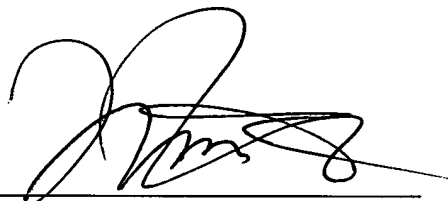
None of the rejections under 35 U.S.C. §103 (a) is well founded. Applicants respectfully request reconsideration and withdrawal of all the § 103 rejections.

In view of the above amendment and remarks, Applicants respectfully submit that the rejection of the claims as set forth

in the Office Action have been addressed and overcome. Applicants further respectfully submit that all Claims are in condition for allowance and request that an early notice of allowance be issued. If the Examiner believes any issues could be resolved through an Examiner's Amendment, or clarified in any manner, a call to the undersigned attorney at (312) 913 2136 is respectfully requested.

Respectfully submitted,

Dated: September 9, 2005 By:


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